

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for reproducing contents information in ~~an interactive optical disc~~ a device, comprising ~~the steps of~~:

a) synchronously ~~synchronizing and~~ reproducing data read from ~~an interactive optical disc~~ a recording medium and contents information ~~sent and~~ downloaded from a contents provider server connected via the Internet, said contents information being associated with the data read from the recording medium;

b) ~~if the sending of said contents information from said contents provider server is suspended or delayed, generating~~ sending a command for requesting re-sending of specific contents information to the contents provider server, with reference to specific information contained in normally reproduced last contents information, if reception of said contents information from said contents provider server is suspended or delayed ~~and sending the generated command to said contents provider server~~; and

c) synchronously reproducing said specific contents information re-sent from said contents provider server in response to said command ~~together with~~ and data read from said recording medium ~~interactive optical disc while re-synchronizing it with said data read from said interactive optical disc~~.

2. (Currently Amended) The method as set forth in claim 1, wherein said specific information contained in said normally reproduced last contents information includes at least one of playback time information, contents information offset information, and offset information of said data read from said ~~interactive optical disc~~ recording medium.

3. (Currently Amended) The method as set forth in claim 2, wherein said step b) includes the steps of:

b-1) checking said specific information contained in said normally reproduced last contents information if the ~~sending~~reception of said contents information from said contents provider server is suspended or delayed;

b-2) calculating information regarding re-synchronizable contents information based upon said checked specific information; and

b-3) generating as said command a command for requesting re-sending of specific contents information corresponding to the calculated information regarding said re-synchronizable contents information and sending the generated command to said contents provider server.

4. (Original) The method as set forth in claim 3, wherein said information regarding said re-synchronizable contents information is calculated with reference to a bandwidth of a current network bit rate.

5. (Original) The method as set forth in claim 3, wherein said command for requesting the re-sending of said specific contents information includes a parameter, said parameter being said information regarding said re-synchronizable contents information.

6. (Currently Amended) The method as set forth in claim 3, wherein said step c) includes the steps of:

c-1) extracting said specific information from said specific contents information re-sent from said contents provider server; and

c-2) re-synchronizing and reproducing said data read from said ~~interactive-optical~~ diserecording medium and said re-sent specific contents information based upon the extracted specific information.

7. (Original) The method as set forth in claim 6, wherein said step c) further includes the step of receiving a command for notification of the re-sending of said specific contents information from said contents provider server before said step c-1) is performed.

8. (Currently Amended) The method as set forth in claim 2, wherein said step b) includes the steps of:

b-1) ~~if the sending of said contents information from said contents provider server is suspended or delayed,~~ determining whether a size of contents information downloaded into a buffer memory of said ~~interactive-optical~~ diserecording medium device and ~~not reproduced yetnot yet reproduced~~ is below a predetermined reference value, if the reception of said contents information from said contents provider server is suspended or delayed,;

b-2) automatically pausing a data reproducing operation of said ~~interactive-optical~~ diserecording medium if the size of said contents information downloaded into said buffer memory and ~~not reproduced yetnot yet reproduced~~ is below said predetermined reference value;
and

b-3) ~~generating~~ sending said command for requesting the re-sending of said specific contents information to the said contents provider server, with reference to said specific information contained in said normally reproduced last contents information, ~~and sending the generated command to said contents provider server.~~

9. (Currently Amended) The method as set forth in claim 8, wherein said step b-3) includes the steps of:

b-3-1) checking said specific information contained in said normally reproduced last contents information;

b-3-2) calculating information regarding contents information subsequent to said normally reproduced last contents information based upon the checked specific information; and

b-3-3) generating as said command a command for requesting re-sending of specific contents information corresponding to the calculated information and sending the generated command to said contents provider server.

10. (Original) The method as set forth in claim 9, wherein said command for requesting the re-sending of said specific contents information includes a parameter, said parameter being said information regarding said contents information subsequent to said normally reproduced last contents information.

11. (Currently Amended) The method as set forth in claim 8, wherein said step c) includes the steps of:

c-1) receiving a command for notification of the re-sending of said specific contents information from said contents provider server;

c-2) after said re-sending notification command is received, extracting said specific information from said specific contents information re-sent from said contents provider server; and

c-3) re-synchronizing and reproducing said data read from said ~~interactive optical disc~~ recording medium and said re-sent specific contents information based upon the extracted specific information.

12. (Currently Amended) A method for providing contents information in a contents provider server, comprising ~~the steps of~~:

a) sequentially sending data packets containing contents information whose sending is requested by ~~an interactive optical disc~~ a device connected via the Internet, and specific information regarding said contents information whose sending is requested, said contents information being associated with data to be read from the recording medium in the device;

b) ~~if the sending of said requested contents information is suspended or delayed~~, receiving a command for requesting re-sending of specific contents information, from said ~~interactive optical disc device~~, if the sending of said requested contents information is suspended or delayed; and

c) re-sending a data packet containing said specific contents information and specific information regarding said specific contents information to said device ~~it to said interactive optical disc device~~ in response to said command.

13. (Currently Amended) The method as set forth in claim 12, wherein said sent contents information is audio data to be reproduced synchronously with video data read from ~~an interactive optical disc~~ an interactive optical disc recording medium in said ~~interactive optical disc~~ device.

14. (Currently Amended) The method as set forth in claim 12, wherein said specific information includes at least one of playback time information, contents information offset information, and offset information of data read from ~~an interactive optical disc~~ an interactive optical disc recording medium.

15. (Original) The method as set forth in claim 12, wherein said command for requesting the re-sending of said specific contents information includes a parameter, said parameter being information regarding said specific contents information.

16. (Currently Amended) The method as set forth in claim 15, wherein said step c) includes the steps of:

c-1) seeking a position of data corresponding to said information regarding said specific contents information;

c-2) sending a command for notification of the re-sending of said specific contents information to said ~~interactive optical disc~~ device; and

c-3) reading said specific contents information at said position and re-sending said data packet containing said specific contents information and said specific information to said device ~~regarding it to said interactive optical disc device~~.

17. (Currently Amended) A method for reproducing contents information in an ~~interactive optical disc~~ a device, comprising ~~the steps of~~:

a) ~~downloading and managing~~ offset table information from a contents provider server connected via the Internet, said offset table information including at least one of playback time information, offset information of data read from a recording medium and contents information offset information in a linked manner;

b) ~~synchronizing and reproducing~~ contents information ~~sent and downloaded from said contents provider server and data read from an interactive optical disc~~ said recording medium, said contents information being associated with the data read from the recording medium;

c) ~~if the sending of said contents information from said contents provider server is suspended or delayed, generating~~ sending a command for requesting re-sending of specific contents information to the contents provider server, with reference to said offset table information, if reception of said contents information from said contents provider server is suspended or delayed ~~and sending the generated command to said contents provider server;~~ and

d) reproducing said specific contents information re-sent from said contents provider server in response to said command together with data read from said recording medium ~~interactive optical disc while re-synchronizing it with said data read from said interactive optical disc.~~

18. (Cancelled)

19. (Currently Amended) The method as set forth in claim 17, wherein said step c) includes the steps of:

c-1) extracting information regarding normally reproduced last contents information from said offset table information if the ~~sending~~ reception of said contents information from said contents provider server is suspended or delayed;

c-2) calculating information regarding re-synchronizable contents information based upon the extracted information; and

c-3) generating as said command a command for requesting re-sending of specific contents information corresponding to the calculated information regarding said re-synchronizable contents information and sending the generated command to said contents provider server.

20. (Original) The method as set forth in claim 19, wherein said information regarding said re-synchronizable contents information is calculated with reference to a bandwidth of a current network bit rate.

21. (Original) The method as set forth in claim 19, wherein said command for requesting the re-sending of said specific contents information includes a parameter, said parameter being said information regarding said re-synchronizable contents information.

22. (Currently Amended) The method as set forth in claim 17, wherein said step d) includes the steps of:

d-1) receiving a command for notification of the re-sending of said specific contents information from said contents provider server; and

d-2) ~~after said re-sending notification command is received,~~ synchronously reproducing said specific contents information re-sent from said contents provider server ~~together with and~~ said data read from said ~~interactive optical disc~~ recording medium ~~while re-synchronizing it with said data read from said interactive optical disc,~~ after said re-sending notification command is received.

23-24. (Cancelled)

25. (Currently Amended) A method for providing contents information in a contents provider server, comprising ~~the steps of:~~

a) sending offset table information regarding contents information whose sending is requested by ~~an interactive optical disc~~ a device connected via the Internet, said offset table information including at least one of playback time information, offset information of data read from said device and contents information offset information in a linked manner;

b) ~~if the sending of said offset table information is completed,~~ sequentially sending said contents information whose sending is requested by said ~~interactive optical disc~~ device, if the sending of said offset table information is completed, said contents information being associated with data read from the recording medium;

c) ~~if the sending of said requested contents information is suspended or delayed,~~ receiving a command for requesting re-sending of specific contents information, from said ~~interactive~~

optical-disc device, if sending of said requested contents information is suspended or delayed as a result of step (b); and

d) re-sending said specific contents information to said ~~interactive-optical-disc~~ device in response to said command.

26. (Currently Amended) The method as set forth in claim 25, wherein said sent contents information is audio data to be reproduced synchronously with video data read from an ~~interactive-optical-disc~~ recording medium in said ~~interactive-optical-disc~~ device.

27. (Cancelled)

28. (Original) The method as set forth in claim 25, wherein said command for requesting the re-sending of said specific contents information includes a parameter, said parameter being information regarding said specific contents information.

29. (Currently Amended) The method as set forth in claim 28, wherein said step d) includes the steps of:

d-1) seeking a position of data corresponding to said information regarding said specific contents information;

d-2) sending a command for notification of the re-sending of said specific contents information to said ~~interactive-optical-disc~~ device; and

d-3) reading said specific contents information at said position and re-sending it to said ~~interactive optical disc device~~ said specific contents information to said device.

30. (Currently Amended) A method for reproducing contents information in ~~an interactive optical disc~~ a device, comprising the steps of:

a) ~~synchronously synchronizing and~~ reproducing data read from ~~an interactive optical disc~~ a recording medium and contents information ~~sent and~~ downloaded from a contents provider server connected via the Internet, said contents information being associated with the data read from the recording medium; and

b) ~~if a size of contents information downloaded into a buffer memory of said interactive optical disc device and not reproduced yet is smaller than or equal to a first predetermined reference value or greater than or equal to a second predetermined reference value, sending a command for requesting adjustment of a contents information bit rate to said contents provider server, if a size of contents information downloaded into a buffer memory of said recording medium device and not yet reproduced is smaller than or equal to a first predetermined reference value or greater than or equal to a second predetermined reference value.~~

31. (Currently Amended) The method as set forth in claim 30, wherein said step a) includes the steps of:

a-1) over said Internet, attempting a connection to said contents provider server having said contents information to be reproduced synchronously with said data read from said ~~interactive optical disc~~ recording medium;

a-2) generating a command for requesting sending of said contents information, based upon information necessary for the connection sent from said contents provider server, and sending the generated command to said contents provider server; and

a-3) synchronizing and reproducing said contents information sent and downloaded from said contents provider server in response to said sending request command and said data read from said ~~interactive optical disc~~ recording medium.

32. (Original) The method as set forth in claim 31, wherein said information necessary for the connection sent from said contents provider server includes an Internet protocol (IP) address and port number of said contents provider server.

33. (Original) The method as set forth in claim 30, wherein said command for requesting the adjustment of said contents information bit rate includes a parameter, said parameter being an available memory size of said buffer memory.

34. (Currently Amended) A method for providing contents information in a contents provider server, comprising ~~the steps of~~:

a) sequentially sending contents information whose sending is requested by ~~an interactive optical disc~~ a device connected via the Internet, said contents information being associated with data to be reproduced in the device; and

b) ~~if a command for requesting adjustment of a contents information bit rate is received from said interactive optical disc device~~, adjusting the bit rate in response to ~~the received a~~

command for requesting adjustment of a contents information bit rate and sending the requested contents information at the adjusted bit rate.

35. (Currently Amended) The method as set forth in claim 34, wherein said step a) includes the steps of:

a-1) ~~if a connection from said interactive optical disc device is attempted over said Internet,~~ sending information necessary for the connection to said ~~interactive optical disc device,~~
if a connection from said device is requested over said Internet; and

a-2) ~~if a command for requesting sending said contents information is received from said interactive optical disc device,~~ sequentially sending said contents information whose sending is requested by said ~~interactive optical disc device,~~ if a command for requesting sending said contents information is received from said device.

36. (Original) The method as set forth in claim 35, wherein said information necessary for the connection includes an IP address and port number of said contents provider server.

37. (Currently Amended) The method as set forth in claim 34, wherein said command for requesting the adjustment of said contents information bit rate includes a parameter, said parameter being an available memory size of a buffer memory of said ~~interactive optical disc device.~~

38. (Currently Amended) The method as set forth in claim 37, wherein said step b) includes the steps of:

b-1) ~~if said command for requesting the adjustment of said contents information bit rate is received from said interactive optical disc device,~~ calculating a new bit rate in consideration of said parameter of said command, a current bit rate and a play speed of said contents information, if said command for requesting the adjustment of said contents information bit rate is received from said device; and

b-2) sending said contents information at the calculated new bit rate.

39. (New) An apparatus for reproducing contents information, comprising:

a reproducing unit configured to synchronously reproduce data read from a recording medium and contents information downloaded from a contents provider server connected via the Internet, said contents information being associated with the data read from the recording medium; and

a controller, coupled to the contents provider server, configured to send a command for requesting re-sending of specific contents information, with reference to specific information contained in normally reproduced last contents information, if the controller determines that reception of said contents information from said contents provider server is suspended or delayed,

wherein said controller is further configured to control the reproducing unit to synchronously reproduce said specific contents information re-sent from said contents provider server in response to said command and data read from said recording medium.

40. (New) The apparatus of claim 39, wherein said specific information contained in said normally reproduced last contents information includes at least one of playback time information, contents information offset information, and offset information of said data read from said recording medium.

41. (New) The apparatus of claim 40, wherein said controller is configured to
check said specific information contained in said normally reproduced last contents information if the reception of said contents information from said contents provider server is suspended or delayed,

calculate information regarding re-synchronizable contents information based upon said checked specific information, and

send as said command a command for requesting re-sending of specific contents information corresponding to the calculated information regarding said re-synchronizable contents information.

42. (New) The apparatus of claim 41, wherein said controller is configured to calculate said information regarding said re-synchronizable contents information with reference to a bandwidth of a current network bit rate.

43. (New) The apparatus of claim 41, wherein said command for requesting the re-sending of said specific contents information includes a parameter, said parameter being said information regarding said re-synchronizable contents information.

44. (New) The apparatus of claim 41, wherein said controller is further configured to extract said specific information from said specific contents information re-sent from said contents provider server, and

control the reproducing unit to synchronously reproduce said data read from said recording medium and said re-sent specific contents information based upon the extracted specific information.

45. (New) The apparatus of claim 44, wherein said controller is configured to receive a command for notification of the re-sending of said specific contents information from said contents provider server, before extracting said specific information.

46. (New) The apparatus of claim 40, wherein said controller is further configured to determine whether a size of contents information downloaded into a buffer memory of said recording medium device and not yet reproduced is below a predetermined reference value, if the controller determines that the reception of said contents information from said contents provider server is suspended or delayed,

automatically pause a data reproducing operation of said recording medium if the size of said contents information downloaded into said buffer memory and not yet reproduced is below said predetermined reference value, and

send said command for requesting the re-sending of said specific contents information to the said contents provider server, with reference to said specific information contained in said normally reproduced last contents information.

47. (New) The apparatus of claim 46, wherein said controller is further configured to check said specific information contained in said normally reproduced last contents information,

calculate information regarding contents information subsequent to said normally reproduced last contents information based upon the checked specific information, and

generate as said command a command for requesting re-sending of specific contents information corresponding to the calculated information and sending the generated command to said contents provider server.

48. (New) The apparatus of claim 47, wherein said command for requesting the re-sending of said specific contents information includes a parameter, said parameter being said information regarding said contents information subsequent to said normally reproduced last contents information.

49. (New) The apparatus of claim 46, wherein said controller is further configured to receive a command for notification of the re-sending of said specific contents information from said contents provider server,

extract said specific information from said specific contents information re-sent from said contents provider server, after said re-sending notification command is received, and

control the reproducing unit to synchronously reproduce said data read from said recording medium and said re-sent specific contents information based upon the extracted specific information.

50. (New) An apparatus for reproducing contents information, comprising:

an interface unit configured to download offset table information from a contents provider server connected via the Internet, said offset table information including at least one of playback time information, offset information of said data read from said recording medium and contents information offset information in a linked manner;

a reproducing unit configured to reproduce contents information downloaded from said contents provider server and data read from a recording medium, said contents information being associated with data read from the recording medium; and

a controller, coupled to the interface unit, configured to send a command for requesting re-sending of specific contents information to the contents provider server, with reference to said offset table information, if the controller determines that the reception of said contents information from said contents provider server is suspended or delayed,

wherein said controller is further configured to control the reproducing unit to reproduce said specific contents information re-sent from said contents provider server in response to said command together with data read from said recording medium.

51. (New) The apparatus of claim 50, wherein said controller is further configured to

extract information regarding normally reproduced last contents information from said offset table information, if the controller determines that the reception of said contents information from said contents provider server is suspended or delayed,

calculate information regarding re-synchronizable contents information based upon the extracted information,

generate as said command a command for requesting re-sending of specific contents information corresponding to the calculated information regarding said re-synchronizable contents information, and

send the generated command to said contents provider server.

52. (New) The apparatus of claim 51, wherein said controller is configured to calculate said information regarding said re-synchronizable contents information with reference to a bandwidth of a current network bit rate.

53. (New) The apparatus of claim 51, wherein said command for requesting the re-sending of said specific contents information includes a parameter, said parameter being said information regarding said re-synchronizable contents information.

54. (New) The apparatus of claim 50, wherein said controller is further configured to receive a command for notification of the re-sending of said specific contents information from said contents provider server, via the interface unit, and

control the reproducing unit to synchronously reproduce said specific contents information re-sent from said contents provider server and said data read from said recording medium, after said re-sending notification command is received.